



Australian Government

CPPSIS5037 Maintain spatial data systems

Release: 1

CPPSIS5037 Maintain spatial data systems

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5037A Maintain complex spatial data systems.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to implement a full cycle of maintenance of spatial data, including updating, backup, recovery and archiving. The unit covers analysing spatial data systems to determine maintenance requirements and constraints; confirming the reliability of spatial data by editing, updating and integrating existing and new spatial data; and problem solving to test and validate data currency and retrieval and backup systems. The unit requires the ability to use computers and software to manage spatial data, create metadata, and apply spatial data input, output and distribution technologies.

The unit supports those who work in a lead role in a surveying or spatial information services team in areas such as surveying, cartography, town planning, mapping or geographic information systems (GIS).

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of endorsement.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

- | | |
|---|---|
| 1. Determine data maintenance requirements. | 1.1. Data maintenance objectives and constraints are identified and documented in consultation with <i>appropriate persons</i> . |
| | 1.2. Data system is analysed to determine components to be maintained according to project objectives. |

- 1.3. Maintenance techniques are determined and evaluated according to organisational requirements.
 - 1.4. Work is allocated to appropriate persons and supervisory processes are implemented to ensure work is completed within time available.
2. Confirm reliability of spatial data.
 - 2.1. Spatial data updates are accessed and checked to confirm currency and relevance, and are recorded according to organisational requirements.
 - 2.2. Spatial data is checked and edited to ensure it is compatible, and in an acceptable format according to project requirements.
 - 2.3. Integrity and consistency of data are maintained according to organisational requirements.
3. Replace spatial data.
 - 3.1. Spatial data is amended and replaced according to project and organisational requirements.
 - 3.2. Existing and new data is edited, prepared and integrated according to project requirements.
 - 3.3. Spatial datasets are tested and **validated** to ensure integrity, quality and currency according to project requirements.
 - 3.4. Documentation is amended and updated according to organisational requirements.
4. Carry out backup and recovery of spatial data.
 - 4.1. Data backups are implemented to ensure data is accessible in contingency situations according to organisational requirements.
 - 4.2. Backup system is tested to ensure that data can be retrieved, and any problems are resolved or contingencies managed according to organisational requirements.
5. Archive spatial
 - 5.1. Spatial dataset to be archived is checked for

data.

completeness and manipulated where necessary.

- 5.2. **Metadata** is created according to organisational requirements.
- 5.3. Archived spatial data is stored in a secure location, and details are recorded according to organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Planning and organising skills to:	• schedule and prioritise work tasks to meet project timeframes.
Numeracy skills to:	• apply error tolerances when manipulating datasets • solve problems relating to height, dimension, direction, position, flow rates and slope.
Oral communication skills to:	• ask questions to determine maintenance objectives.
Reading skills to:	• interpret query language and graphic interfaces.
Technology skills to:	• apply spatial data input, output and distribution technologies • use scripting, queries, macros, networks and remote access when maintaining spatial data systems.
Problem-solving skills to:	• verify accuracy and currency of data and identify errors.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Appropriate persons

must include at least two of the following:

- client
- manager
- spatial technician
- staff.

Validated must include at least two of the following methods:

- confounding bias
- information/data bias
- observational bias
- recall bias
- selection bias.

Metadata must include at least four of the following:

- availability
- conditions of use
- coordinate system
- currency
- custodian
- data accuracy
- data description
- date of acquisition
- licence
- quality
- source
- spatial data acquisition methodologies
- version control.

Unit Mapping Information

CPPSIS5037A Maintain complex spatial data systems

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS5037 Maintain spatial data systems

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also implement the full cycle of maintenance of spatial data systems for two different projects, including the full cycle of updating, backup, recovery and archiving.

While maintaining the above spatial data systems, the person must:

- allocate tasks within the work team, and provide supervision to ensure work is completed within required timeframes
- apply industry-accepted standards for:
 - accuracy, precision and error tolerances to ensure data systems are accurately maintained
 - creating and recording metadata
- comply with administrative and legal requirements for storing and retrieving spatial data, including data privacy and information copyright
- comply with organisational requirements and manufacturer specifications when using the equipment specified in the assessment conditions
- comply with organisational requirements for recording data and completing documentation, and working safely when using screen-based equipment
- evaluate and decide appropriate data maintenance techniques
- use spatial data input technologies, including:
 - digitising
 - scanning
 - remote sensing
 - satellite imagery
- use spatial data output and distribution technologies, including:
 - scripting
 - query language
 - macro development
 - graphic interfaces
 - networks
 - remote access.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- administrative and legal requirements for accessing, storing, retrieving and archiving digital and hard copy spatial data, including data privacy and information copyright
- advanced spatial data reduction processes
- key features of coordinate reference systems
- industry-accepted standards relating to accuracy and precision, error tolerances and metadata
- types of map projections
- methods for validating test results to identify systematic distortions
- organisational policy and procedures relating to work tasks, including:
 - health and safety when using the equipment specified in the assessment conditions
 - maintaining the quality and integrity of spatial data
 - reporting, including completing records and documentation
 - storing and retrieving data
- software that can be used to manage spatial data, create metadata, and apply spatial data input, output and distribution technologies
- types of spatial data formats
- techniques for using spatial data input technologies, as specified in the performance evidence
- techniques for using spatial data output and distribution technologies, as specified in the performance evidence
- types of storage media for a range of spatial data.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - computer with software appropriate for spatial data management and retrieval
 - hard copy and digital data storage media
 - printer
- specifications:
 - organisational policies and procedures relating to:
 - work health and safety
 - data privacy and information copyright
- physical conditions:
 - access to equipped work station
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by task and organisational requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

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